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Contamination

Evaluation of Particulate Contamination for Unmanned Spacecraft Prelaunch Operations, Schneider, H. W., Vol. 18, No. 1, p. 20. *The effectiveness of a contamination control approach taken during final assembly and simulated prelaunch operations with a Mariner Mars 1969 spacecraft at the Air Force Eastern Test Range is evaluated. Quantitative data pertaining to surface and air cleanliness are presented and discussed.*

Energy

It Takes Energy to Get Energy; The Law of Diminishing Returns Is in Effect, Clark, W., Vol. 18, No. 2, p. 11. *Today's energy crisis is pushing us toward a "steady state" economy whereby our energy consumption has to equal energy production. Various energy source and use potentials are analyzed in terms of energy costs.*

What the Feds Have Brewing, Clark, P., Vol. 18, No. 2, p. 19. *Discussion is provided of potential regulation and legislation on energy use to steer the country towards common management of energy. ERDA is established to achieve long-range goals while more immediate results are hoped for through FEA efforts.*

Environmental Impact

Identification and Evaluation of Hazards from Industrial, Transportation and Military Facilities, Kantor, F., Nischan, W. F., Murphy, K. G., Grimes, B. K., Vol. 18, No. 4, p. 16. *The U.S. Nuclear Regulatory Commission considers the threat of external hazards to proposed sites for nuclear power plants. Hazards due to industrial, transportation, and military facilities and activities in the vicinity of a proposed site are evaluated in the course of a review of an application to construct a nuclear power plant. Commission guidance on the subject of external hazards is summarized and typical hazards and the methodology employed by the Regulatory staff in the review process are discussed.*

Environmental/Reliability

IES Project for Improvements in Environmental/Reliability Testing Methodology for Military Weapons Systems, Hancock, R. N. and Baber, S., Vol. 18, No. 6, p. 11. *The Environmental/Reliability Project Group of the Institute of Environmental Sciences presents an overview of the DOD electronic systems reliability problems and activities which have been generated toward their solution, both within the DOD and through the IES project.*

Environmental Test Criteria

Natural Environmental Criteria Program-Marshall Space Flight Center, Daniels, G. E., Vol. 18, No. 1, p. 37, *The natural environmental design criteria is a continuous development involving new areas of research as man continues to explore and extend his environment. This article presents a synopsis on the development work at the NASA Marshall SFC in establishing natural environment criteria.*

Environmental Test Standards

Review of Recent Progess in United Kingdom National Defence Environmental Testing Document, Higgin, R. M., Vol. 18, No. 1, p. 17. *Recent developments in the revision and expansion of UK national defence environmental defense standards and associated international agreements are briefly described.*

Trends in Standardized Test Philosophy, Caruso, H. (Editor), Vol. 18, No. 5, p. 17. *This is a summary of the Test Standards presentations made at the 21st Annual Meeting of the Institute of Environmental Sciences and not published in the 1975 PROCEEDINGS. Current and future test trends are outlined.*

Oil Pollution

Experience with French Petroleum Institute Propane Clarification Process in Re-Refining Spent Crankcase Oils, vu Quang, D., Carriero, G., Schieppati, R., Comte, A., Andrews, J. W., Vol. 18, No. 3, p. 18. *A process developed by the French Petroleum Institute is described for propane clarification of spent lube oils prior to conventional acid/clay treating. Viscolube Italiana experience shows that the IFP process lowers the amounts of acid and clay needed, reduces sludge formation and associated pollution, and improves product quality.*

Physical and Chemical Analysis of Surfaces

Characterization of Solid Surfaces, Moddeman, W. E., Cothern, C. R., Black, J. N., Vol. 18, No. 5, p. 27. *Several recent developments in surface analysis are discussed in depth including applications: Electron Spectroscopy for Chemical Analysis (ESCA), Auger Electron Spectroscopy (AES) and Ion Scattering Spectroscopy (ISS). It is shown that these techniques can determine the oxidation state, molecular composition and distribution of elements on the surface of solids.*

Pollution Control

Effluent Charges or Restrictions—An Economist's View, Ferrar, T. A., Horst, R: L., Vol. 18, No. 6, p. 37. *This article attempts to introduce and explain to the noneconomist reader the use of economic incentives as a method of controlling pollution. The paper develops the traditional economic arguments for the input decision of a firm and analyzes the influence of both an effluent charge and direct effluent restriction policy in controlling environmental degradation. In essence, the authors demonstrate that among alternative strategies the adoption of a charging scheme will yield results that are cost minimizing to firms, and hence indirectly cost minimizing to society.*

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Avionics Reliability, Part 1, Swett, B. H., Vol. 18, No. 5, p. 11.
Avionics Reliability, Part 2, Swett, B. H., Vol. 18, No. 6, p. 20. *The article discusses avionics equipment reliability assessment and prediction as required by MIL-STDs. Interpretation of requirements has led to confusion.*

Seismic

Testing Techniques for Simulating Earthquake Motion, Kao, G. C., Vol. 18, No. 2, p. 22. *Testing techniques to provide simulated earthquake motions for testing nuclear power plant components are described in this article. Assessment on analog and digital control techniques used in the performance of seismic testing are also discussed.*

Seismic Standards

A Review of Seismic Qualification Standards for Electrical Equipment, Skreiner, K. M., Test, L. D., Vol. 18, No. 3, p. 13. *Recent developments in seismic qualification standards and modern specifications for electrical equipment in the power transmission and generation fields are discussed including publication of IEEE 344-1975, "IEEE Recommended Practices for Seismic Qualification of Class IE Equipment for Nuclear Power Generating Stations".*

Shock & Vibration Testing Control

Total Automation of Shock, Vibration and Acoustic Test Facility Using a Digital Control System, Sullivan, S. F., Vol. 18, No. 1, p. 11. *This article illustrates the application of a digital control and analysis system to multi-test station shock, vibration and acoustic testing facilities. It examines the growth of these systems from research units to production tools and discusses the degrees of automation possible. Areas resulting in greater cost effectiveness in the environmental test facility for engineering, production and quality control through the use of digital control and analysis systems are enumerated.*

Solar Energy

A Solar Powered Tracking Device for Solar Concentrators, Farber, E. A., Morrison, C. A., Ingley, H. A., Pytlinski, J. T., Wiggins, D. B., Vol. 18, No. 3, p. 11. *In support of a solar cooking project for the University of Florida Solar House, a project was initiated to design and construct a concentrating device with a tracking mechanism which would be completely solar powered and independent of conventional energy sources. Techniques used in the development and construction of this solar powered, fluid-mechanical tracking device are discussed.*

Waste Management

Problems and Prospects in the Management of Solid Radioactive Waste, Wolfe, R. A., Vol. 18, No. 4, p. 9. *Large volumes of contaminated solid waste materials arise in the nuclear fuel cycle that have to be collected, processed and disposed. Primary sources of these wastes and their characteristics are described along with estimates of their quality. Candidate processes of treatment and suggested methods of reducing the arising of such materials are described along with the current methods of storage and projected methods of disposal.* ■